

(1) The request to amend an application or to transfer or assign a license does not involve a substantial change in the ownership or control of the applicant; or

(2) The changes in the ownership or control of the applicant are involuntary due to the original applicant's insolvency, bankruptcy, incapacity, or death.

(c) Responsibilities of assignee. The assignee or transferee of a nationwide system is subject to the construction benchmarks and reporting requirements of § 88.983. The assignee or transferee of a nationwide system is not subject to the application requirements at § 88.979.

(d) A licensee may not partially assign any nationwide authorization.

§ 88.983 Construction requirements.

(a) Licensees granted SMR nationwide authorizations must construct base stations having a minimum of five assigned nationwide channels and place those base stations in operation as follows:

(1) In at least 10 percent of the geographic areas designated in the application within two years of initial license grant, including base stations in at least seven urban areas listed in § 88.1601;

(2) In at least 40 percent of the geographic areas designated in the application within four years of initial license grant, including base stations in at least 28 urban areas listed in § 88.1601;

(3) In at least 70 percent of the geographic areas designated in the application within six years of initial license grant, including base stations in at least 28 urban areas listed in § 88.1601;

(4) In all geographic areas designated in the application within ten years of initial license grant, including base stations in at least 28 urban areas listed in § 88.1601;

(b) Base stations are considered to be located in an urban area if they are within 60 kilometers (37.3 miles) of the coordinates listed in § 88.1601;

(c) SMRs not meeting the two and four year criteria will lose the entire authorization, but will be permitted a six month period to convert the system to non-nationwide channels, if such channels are available.

(d) SMRs not meeting the six and ten year criteria will lose the authorizations for the facilities not constructed, but will retain exclusivity for constructed facilities.

(e) Licensees for Non-Commercial channels must construct base stations in a minimum of 70 designated in their application within five years of the initial license grant.

§ 88.985 Progress reports.

(a) Each nationwide SMR licensee must file a system progress report on or before the anniversary date of the grant of its license after 2, 4, 6 and 10 years, demonstrating compliance with the relevant construction benchmark criteria. This progress report must include:

(1) An overall status report of the system that must include, but need not be limited to, a list of all sites at which base stations have been constructed, with antenna heights and effective radiated power specified for each site, a list of all other known base station sites at which construction has not been completed, and a construction and operational schedule for the next five-year period, including any known changes to the plan for construction and operation submitted with the licensee's original application for the system.

(2) An analysis of the system's compliance with the requirements of § 88.983, with documentation to support representations of completed construction, including, but not limited to equipment purchase orders and contracts, lease or purchase contracts relating to antenna site arrangements, equipment and antenna identification (serial) numbers, and service agreements and visits.

(b) Beginning with its second license term, each nationwide licensee must file a progress report once every five years on the anniversary date of the grant of the first renewal of its authorization, including the information required by paragraph (a)(1) of this Section.

(c) SMRs must maintain records of the names and addresses of each customer and the dates that service commenced and terminated. These records must be made available to the Commission upon request. All licensees must report at the time of license renewal the number of mobile units being served to Land Mobile Branch, Licensing Division, Private Radio Bureau, Gettysburg, PA 17326.

§ 88.987 Authorization limitations.

(a) These frequencies may only be used for base/mobile and mobile relay transmissions on a primary basis, and fixed voice, signaling and paging transmissions ancillary to land mobile use. Fixed-only and paging-only operations are not permitted.

(b) Licensees of non-commercial nationwide systems may lease excess capacity of their systems as private carriers five years after the date of the original license grant provided their system is fully constructed and operational.

(c) Station identification pursuant to § 88.489 is not required.

(d) Also see § 88.227 for special separation requirements concerning 220.1025-220.1475 MHz.

INNOVATIVE SHARED USE OPERATIONS

§ 88.997 Innovative shared use operations.

Sections 88.999-88.1019 govern innovative shared use operations. Licenses for these operations are available for geographic areas corresponding to each of the seven regional markets corresponding to the regional Bell operating companies, including the areas within their operational boundaries that may be served by other carriers. Alaska, Hawaii, Puerto Rico and other possessions and territories will be included in the geographically closest market.

§ 88.999 Innovative shared use voice/data frequencies.

Except as specified at § 88.1001, any innovative shared use radio operations licensee for a given market may use any of the following 258 frequency pairs on a shared basis with all other innovative shared use radio operations licensees in that market. The lower half of each pair is base or mobile use. The upper half is for mobile only use.

150.810/155.770, 150.825/155.785, 150.840/155.800, 150.855/155.815,
150.870/155.830, 150.885/155.845, 150.900/155.860, 150.915/155.875,
150.930/155.890, 150.945/155.905, 150.960/155.920, 150.975/155.935,
150.990/155.950, 151.005/155.965, 151.020/155.980, 151.035/155.995,
151.050/156.010, 151.065/156.025, 151.080/156.040, 151.095/156.055,
151.110/156.070, 151.125/156.085, 151.140/156.100, 151.155/156.115,
151.170/156.130, 151.185/156.145, 151.200/156.160, 151.215/156.175,
151.230/156.190, 151.245/156.205, 151.260/156.220, 151.275/156.235,
151.290/157.465, 151.305/157.480, 151.320/157.495, 151.335/157.510,
151.350/157.525, 151.365/157.540, 151.380/157.555, 151.395/157.570,
151.410/157.585, 151.425/157.600, 151.440/157.615, 151.455/157.630,
151.470/157.645, 151.485/157.660, 151.500/157.675, 151.515/157.690,
151.530/157.705, 151.545/158.125, 151.560/158.140, 151.575/158.155,
151.590/158.170, 151.605/158.185, 151.620/158.200, 151.635/158.215,
151.650/158.230, 151.665/158.245, 151.680/158.260, 151.695/158.275,
151.710/158.290, 151.725/158.305, 151.740/158.320, 151.755/158.335,
151.770/158.350, 151.785/158.365, 151.800/158.380, 151.815/158.395,
151.830/158.410, 151.845/158.425, 151.860/158.725, 151.875/158.740,
151.890/158.755, 151.905/158.770, 151.920/158.785, 151.935/158.800,
151.950/158.815, 151.965/158.830, 151.980/158.845, 152.265/158.860,
152.280/158.875, 152.295/158.890, 152.310/158.905, 152.325/158.920,
152.340/158.935, 152.355/158.950, 152.370/158.965, 152.385/158.980,
152.400/158.995, 152.415/159.010, 152.430/159.025, 152.445/159.040,
152.865/159.085, 152.880/159.100, 152.895/159.115, 152.910/159.130,
152.925/159.145, 152.940/159.160, 152.955/159.175, 152.970/159.190,
152.985/159.205, 153.000/159.220, 153.015/159.235, 153.030/159.250,
153.045/159.265, 153.060/159.280, 153.075/159.295, 153.090/159.310,
153.105/159.325, 153.120/159.340, 153.135/159.355, 153.150/159.370,

153.165/159.385, 153.180/159.400, 153.195/159.415, 153.210/159.430,
153.225/159.445, 153.240/159.460, 153.255/159.475, 153.270/159.490,
153.285/159.505, 153.300/159.520, 153.315/159.535, 153.330/159.550,
153.345/159.565, 153.360/159.580, 153.375/159.595, 153.390/159.610,
153.405/159.625, 153.420/159.640, 153.435/159.655, 153.450/159.670,
153.465/159.685, 153.480/159.700, 153.495/159.715, 153.510/159.730,
153.525/159.745, 153.540/159.760, 153.555/159.775, 153.570/159.790,
153.585/159.805, 153.600/159.820, 153.615/159.835, 153.630/159.850,
153.645/159.865, 153.660/159.880, 153.675/159.895, 153.690/159.910,
153.705/159.925, 153.720/159.940, 153.735/159.955, 153.750/159.970,
153.765/159.985, 153.780/160.000, 153.795/160.015, 153.810/160.030,
153.825/160.045, 153.840/160.060, 153.855/160.075, 153.870/160.090,
153.885/160.105, 153.900/160.120, 153.915/160.135, 153.930/160.150,
153.945/160.165, 153.960/160.180, 153.975/160.195, 153.990/160.210,
154.005/160.225, 154.020/160.240, 154.035/160.255, 154.050/160.270,
154.065/160.285, 154.080/160.300, 154.095/160.315, 154.110/160.330,
154.125/160.345, 154.140/160.360, 154.155/160.375, 154.170/160.390,
154.185/160.405, 154.200/160.420, 154.215/160.435, 154.230/160.450,
154.245/160.465, 154.260/160.480, 154.275/160.495, 154.290/160.510,
154.305/160.525, 154.320/160.540, 154.335/160.555, 154.350/160.570,
154.365/160.585, 154.380/160.600, 154.395/160.615, 154.410/160.630,
154.425/160.645, 154.440/160.660, 154.485/160.675, 154.500/160.690,
154.535/160.705, 154.550/160.720, 154.565/160.735, 154.580/160.750,
154.595/160.765, 154.610/160.780, 154.640/160.795, 154.645/160.810,
154.660/160.825, 154.675/160.840, 154.690/160.855, 154.705/160.870,
154.720/160.885, 154.735/160.900, 154.750/160.915, 154.765/160.930,
154.780/160.945, 154.795/160.960, 154.810/160.975, 154.825/160.990,
154.840/161.005, 154.855/161.020, 154.870/161.035, 154.885/161.050,
154.900/161.065, 154.915/161.080, 154.930/161.095, 154.945/161.110,
154.960/161.125, 154.975/161.140, 154.990/161.155, 155.005/161.170,
155.020/161.185, 155.035/161.200, 155.050/161.215, 155.065/161.230,
155.080/161.245, 155.095/161.260, 155.110/161.275, 155.125/161.290,
155.140/161.305, 155.155/161.320, 155.170/161.335, 155.185/161.350,
155.200/161.365, 155.215/161.380, 155.230/161.395, 155.245/161.410,
155.260/161.425, 155.275/161.440, 155.290/161.455, 155.305/161.470,
155.320/161.485, 155.335/161.500, 155.350/161.515, 155.365/161.530,
155.380/161.545, 155.395/161.560

Also see, §§ 88.639-88.643 for geographic restrictions for certain frequencies.

§ 88.1001 Control channels.

Each applicant for innovative shared use operations must specify one or two channel pairs from § 88.999 to be used for control signalling purposes for the

§ 88.1003 Additional frequencies.

Any innovative shared use radio operations licensee may employ additional voice/data or control channels from Subpart D, provided that licensee has exclusivity or concurrence for trunking those channels. See § 88.445.

§ 88.1005 Eligibility.

Any entity, except a wire line telephone common carrier, that has

(a) At least ten base stations, as of the date of the application, in the regional market applied for; and,

(b) At least \$1,000,000 in sales or expenditures in each of the past two years

is eligible for an innovative shared use radio operations license in a particular market. Innovative shared use licenses will be granted as licenses in the Specialized Mobile Radio Service.

§ 88.1007 Grant of additional applications.

(a) Channels from Subpart D may be used as part of an innovative shared use system provided that the innovative shared use licensee has exclusivity or concurrence for trunking (see § 88.445) those additional channels.

(b) If all innovative shared use operation control channel pairs in a market are licensed, additional innovative shared use licenses will be granted provided a majority of the existing Innovative Shared Used licensees in that market provide written concurrence.

§ 88.1009 Sharing requirements.

(a) All innovative shared used licensees must share the voice/data channels listed at § 88.999. Cooperation among licensees to make this sharing successful is required. The Commission may cancel a license if the Commission in its sole discretion, determines that the licensee has failed to cooperate with other licensees.

(b) Each innovative shared used radio operations licensee must guarantee that all other licensees can receive and properly interpret on a real-time basis all control signals used by its system. No licensee may charge a fee for or restrict interpretation of the control signal by other licensees. No licensee may use equipment for which the manufacturer, distributor, or any other third party charges a fee for or restricts interpretation of the control signal to any other licensee, manufacturer, or other third party.

(c) In case of interference, licensees should attempt to resolve the problem on their own or using a qualified third party. If complaints are

filed with the Commission, the last innovative shared use licensee to construct or modify a base station/channel will be required to correct the interference.

§ 88.1011 Application requirements.

(a) Applications for innovative shared use operations must specify the control channel and market requested.

(b) Each application must include

(1) A construction schedule;

(2) A plan to meet the spectrum efficiency requirements at § 88.1015;

(3) Proof that the applicant has sufficient financial resources to construct and operate the proposed system during the first license term; i.e., that the applicant has net current assets sufficient to cover estimated cost or a firm financial commitment sufficient to cover estimated costs. (See para. (c) of this section.)

(4) Proof that the eligibility requirements are met.

(c) Applicants relying on personal or internal resources for the showing required in paragraph (b) (3) of this section must submit independently audited financial statements certified within one year of the date of the application showing net current assets sufficient to meet estimated construction and operating costs. Applicants must also submit an unaudited balance sheet, current within 60 days of the date of submission, that clearly shows the continued availability of sufficient net current assets to construct and operate the proposed system, and a certification by the applicant or an officer of the applicant organization attesting to the validity of the balance sheet.

(d) Applicants submitting evidence of a firm financial commitment for the showing required in paragraph (b) (3) of this section must obtain the commitment from a **bona fide** commercially acceptable source, e.g., a state or federally chartered bank or savings and loan institution, other recognized financial institution, the financial arm of a capital equipment supplier, or an investment banking house. If the lender is not a state or federally chartered bank or savings and loan institution, other recognized financial institution, the financial arm of a capital equipment supplier, or an investment banking house, the lender must also demonstrate that it has funds available to cover the total commitments it has made. The lender's commitment shall contain a statement that the lender:

(1) Has examined the financial condition of the applicant including an audited financial statement, and has determined that the applicant is creditworthy:

(2) Has examined the financial viability of the proposed system for which the applicant intends to use the commitment; and

(3) Is willing to provide a sum to the applicant sufficient to cover the realistic and prudent estimated costs of construction of 40 percent of the system and operation of the system for the first five years of the license term; and

(e) One per Market. An applicant may not have any interest in another pending application for an innovative shared use radio operation license in that regional market.

§ 88.1013 Construction requirements.

(a) Innovative shared use licensees must construct at least 25 base stations within five years of initial license grant.

(b) Within each regional market are a number of Metropolitan Statistical Areas (MSAs). Innovative shared use licensees must construct and place in operation:

(1) At least 4 base stations in each MSA in § 88.1601 located in their regional market by the end of their first license term;

(2) Each voice/data frequency pair on at least one base station within their assigned region by the end of their first license term; and

(3) Each voice/data frequency pair at least three times in each MSA in § 88.1601 by the end of the second license term.

(c) By the end of each licensing term, each base station must meet the spectrum efficiency standards at § 88.1015.

(d) Licensees failing to meet any of the deadlines in this section:

(1) May not construct additional base stations;

(2) May not transfer their licenses;

(3) Are excluded from the concurrence requirements at § 88.1007(b).

§ 88.1015 Additional spectrum efficiency requirements.

(a) An innovative shared use operations licensee must construct and operate multiple base stations that efficiently reuse channels within each of the MSAs listed at § 88.1601 that are located in its regional market.

(b) By the end of each ten-year license term after the first license term, within each of the MSAs listed at § 88.1601, a licensee must employ a new or additional technology or technique that expands voice/data capacity by at

least 100 percent. Innovative shared use licensees failing to meet the requirements in this section will subject to the conditions at § 88.1013(d).

§ 88.1017 Licensing of specific base stations.

Innovative shared use radio operations licensees, except as specified in § 88.1019(a), do not have to modify their license each time a base station is constructed or modified, unless that station requires FAA clearance, as specified in Part 17 of our rules at §§ 17.7-17.17 of this chapter, or that may have a significant environmental impact, as defined by § 1.1307 of this chapter, or that are located in a "quiet zone", as defined by § 88.317.

§ 88.1019 Supplemental reports.

(a) **General Status Report.** Every two years, or when the number of new base stations or substantially altered base stations exceeds 25, the innovative shared use operations licensee must submit a progress report containing information on the status of construction, technology and business, including new base station information, changes in technology at specific sites and the average number of mobiles using the system over the past 6 months. For purposes of this section, a substantial alteration to a base station includes a change in location, technology, the addition of 25 or more channels listed at § 88.999, and the addition of any channel listed in Subpart D.

(b) **Technology Report.** Three years prior to the end of each license term, each innovative shared use operation licensee must submit a report to the Private Radio Bureau on how they intend to meet the requirements at 88.1015(b).

MUTUAL AID OPERATIONS

§ 88.1029 Mutual aid operations.

(a) Public Safety licensees are authorized to use mobile and/or portable units on the frequencies 39.46, 45.86, 45.88, 154.475, 154.480, and 220.8025-220.8475/221.8025-221.8475 MHz throughout the United States, its territories, and possessions to transmit: communications relating to the immediate safety of life; or communications to facilitate interoperability between public safety entities.

(b) Licenses for base stations are required and are available only to Public Safety Radio Service eligibles. Communications on these channels that do not relate to the immediate safety of life or to communications interoperability between public safety entities may only be conducted on a secondary, non-interference basis to such communications.

(c) Also see § 88.227 for special separation requirements for the frequencies 220.8025-220.8475/221.8025-221.8475 MHz.

(d) Additionally, 866.0125, 866.5125, 867.0125, 867.5125 and 868.0125 MHz are available for mutual aid purposes as defined in Gen. Docket No. 87-112. See § 88.833.

PAGING OPERATIONS

§ 88.1059 Paging operations.

Sections 88.1061-1079 govern the assignment and operation of one-way paging operations.

§ 88.1061 Paging channel bandwidths.

Paging only frequencies in the 150-174 MHz band refer to wideband channels 25 kHz wide, *i.e.* equivalent to five standard mobile frequency channels. Paging frequencies in the 450-470 MHz band refer to wideband channels 25 kHz wide, *i.e.* equivalent to four standard mobile frequency channels. These paging frequencies are exempt from spectrum efficiency requirements.

§ 88.1063 Paging frequencies.

(a) Non-Commercial Radio Service Paging.

(1) These frequencies are assigned only for one-way paging communications to mobile receivers.

35.64, 35.68, 43.68, 152.0075, 157.450, 163.250, 929.0125, 929.0375, 929.0625, 929.0875, 929.1125, 929.1375, 929.1625, 929.1875, 929.2125, 929.2375, 929.2625, 929.2875, 929.3125, 929.3375, 929.4875, 929.5125, 929.5375, 929.5625, 929.5875, 929.6125 MHz

The frequencies 929.2625 and 929.4875 MHz are available only for use in multi-area paging systems.

(2) Secondary alert-paging. A licensee regularly conducting two-way communication operations on frequencies below 174 MHz may, on a secondary basis, also transmit one-way alert-paging signals to ambulance and rescue squad personnel.

(3) Puerto Rico and the Virgin Islands. In addition, the frequencies 150.830, 150.920, 151.070, 151.190 and 151.310 MHz are also available in Puerto Rico and the Virgin Islands for one-way paging communications to mobile receivers.

(b) General Pool. These frequencies are assigned only for one-way paging communications to mobile receivers and are available in the SMR and other radio services.

152.480, 154.625, 157.740, 158.460, 462.750, 462.775, 462.800, 462.825, 462.850, 462.875, 462.900, 462.925, 465.000, 929.3625, 929.3875, 929.4125, 929.4375, 929.4625, 929.6375, 929.6625, 929.6875, 929.7125, 929.7375, 929.7625, 929.7875, 929.8125, 929.8375, 929.8625, 929.8875, 929.9125, 929.9375, 929.9625, 929.9875

The frequencies 929.7625 and 929.9875 MHz are available for use in multi-area paging systems.

(c) **Public Safety Radio Service**. Paging operations may be authorized on a secondary basis on frequencies below 50 MHz listed at § 88.613.

(d) Paging operations are permitted in the **806-824/851-869 MHz and 896-901/935-940 MHz bands** by licensees who have been authorized a channel(s) on an exclusive basis.

(e) Systems authorized in the **220-222 MHz band** may only be used for paging transmissions ancillary to land mobile use. Paging-only operations are not permitted in this band.

(f) Paging operations are permitted on a secondary basis for channels in Subpart D in the **150-174 and 450-470 MHz bands** if the licensee has **written concurrence** from all co-channel base station licensees located within 113 km (70 mi), or the licensee has **written concurrence** from all co-channel base station licensees located within 80 km (50 mi) and all co-channel base station licensees located between 113 km (70 mi) and 80 km (50 mi) whose stations **exceed** the power limitation of § 88.429.

§ 88.1065 Multi-area paging systems.

Applicants requesting a multi-area paging frequency (929.2625, 929.4875, 929.7625, or 929.9875 MHz) must operate paging systems on this frequency in at least three separate geographic areas within eight months of the date of authorization. If at the end of eight months, systems have not been constructed in three separate geographic areas, authorization cancels automatically. An applicant authorized for multi-area service may also provide local service on this frequency in the authorized areas.

§ 88.1067 Power limitations.

With the following exceptions, ERP is limited to the relevant limits at § 88.429.

(a) Use of the frequencies **152.480 and 157.740 MHz** is limited to 300 watts output power.

(b) Use of the frequencies **154.625, 157.450 and 158.460 MHz** is limited to 20 watts output power.

(c) Use of the frequency **465.000 MHz** is limited to 35 watts output power.

§ 88.1069 Interservice use in the 929-930 MHz band.

Except for the channels available for multi-area operation, the Non-Commercial Radio Service paging channels in the 929-930 MHz band channels listed in § 88.1063(b) are available for private carrier operations if:

(a) There are no satisfactory frequencies available among the 929-930 MHz general pool and,

(b) There are no users authorized on the frequency in the proposed area of operation.

§ 88.1079 Paging frequencies for the physically handicapped.

(a) Availability. The frequencies 35.02 and 43.64 MHz will be assigned to handicapped individuals as defined in (b), or to the parents or guardians of persons under 18 years eligible under (b), or institutions devoted to the care or training of those persons. The initial application from a person claiming eligibility under paragraph (b) must be accompanied by a statement from a physician attesting to the condition of the applicant or the applicant's child (or ward in case of guardianship).

(b) Handicap definitions.

(1) Any person having a hearing deficiency such that average hearing threshold levels are 90 dB above ANSI (American National Standards Institute) 1969 or ISO (International Standards Organization) 1964 levels and such other persons who submit medical certification of similar hearing deficiency.

(2) Any person having visual acuity corrected to no better than 20/200 in the better eye or having a field of vision of less than 20 degrees.

(3) Any person, who, through loss of limbs or motor function, is confined to a wheelchair, or is nonambulatory.

(4) Any person who is actively awaiting organ transplants.

(c) Authorization limitations.

(1) Only A1A, A1D, A2B, A2D, F1B, F2B, F2D, G1B, G1D, G2B, G2D emissions will be authorized.

(2) For 35.02 and 43.64 MHz, output power may not exceed 3 watts and 10 watts, respectively.

(3) For 43.64 MHz, antennas having gain greater than 0 dBd will not be authorized. Transmissions must not exceed two seconds duration.

(4) 35.02 MHz is shared with General Category users under Subpart D.

TRAVELERS' INFORMATION STATIONS

§ 88.1089 Travelers' information stations (TIS).

Travelers' Information Stations transmit non-commercial information on traffic and road conditions, traffic hazard and traveler advisories, directions, availability of lodging, rest stops and service stations, and descriptions of local points of interest. Sections 88.1091-88.1097 govern TIS.

§ 88.1091 TIS frequencies.

(a) The frequencies 530 through 1700 kHz in 10 kHz increments may be assigned for the operation of Travelers' Information stations.

(b) TIS will be authorized on a secondary basis to AM broadcast station operation. TIS applicants must protect broadcast assignments in the 535-1605 kHz band and allotments in the 1605-1705 kHz band.

§ 88.1093 Eligibility.

The frequencies may be assigned for the operation of TIS to entities eligible for the Public Safety Radio Service, plus park districts and authorities.

§ 88.1095 Application requirements.

Each application for a station or system must be accompanied by:

(a) Non-interference basis. A statement certifying that the transmitting site of the TIS will be located at least 15 km (9.3 mi) measured orthogonally, outside the measured 0.5 mV/meter daytime contour of any AM broadcast station operating on a first adjacent channel or at least 130 km (80.6 mi) outside the measured 0.5 mV/m daytime contour (0.1 mV/m for Class A stations) of any AM broadcast station operating on the same channel, or, if nighttime operation is proposed, outside the theoretical 0.5 mV/m-50% nighttime skywave contour of a U.S. Class A station. If the measured contour is not available, then the calculated 0.5 mV/m field strength contour is acceptable. These contours are available for inspection at the concerned AM broadcast station and FCC offices in Washington, D.C.

(b) In consideration of possible cross-modulation and inter-modulation interference effects which may result from the operation of a TIS in the vicinity of an AM broadcast station on the second or third adjacent channel, the applicant must certify that he has considered these possible interference effects and, to the best of his knowledge, does not foresee harmful

interference occurring to broadcast stations operating on second or third adjacent channels.

(c) A map showing the geographic location of each transmitter site and an estimate of the signal strength at the contour of the desired coverage area. For a cable system, the contour to be shown is the estimated field strength at 60 m (197 ft) from any point on the cable. For a conventional radiating antenna, the estimated field strength contour at 1.5 km (0.93 mi) must be shown. A contour map comprised of actual on-the-air measurements must be submitted to the Commission within 60 days after station authorization or completion of station construction, whichever occurs later. A sufficient number of points must be chosen at the specified distances (extrapolated measurements are acceptable) to adequately show compliance with the field strength limits.

(d) Technical Data. For each transmitter site, the transmitter's output power, the type of antenna utilized, its length (for a cable system), its height above ground, distance from transmitter to the antenna, and the elevation above sea level at the transmitting site.

§ 88.1095 Restrictions on TIS authorizations

(a) A TIS authorization may be suspended, modified, or withdrawn by the Commission without prior notice of right to hearing if necessary to resolve interference conflicts, to implement agreements with foreign governments, or in other circumstances warranting such action.

(b) The transmitting site of each TIS must be restricted to the immediate vicinity of the following specified areas: Air, train, and bus transportation terminals, public parks and historical sites, bridges, tunnels, and any intersection of a Federal Interstate Highway with any other Interstate, Federal, State, or local highway.

(c) A TIS will normally be authorized to use a single transmitter. However, a system of stations, with each station in the system employing a separate transmitter, may be authorized for a specified area provided sufficient need is demonstrated by the applicant.

(d) TIS may transmit only noncommercial voice information pertaining to traffic and road conditions, traffic hazard and travel advisories, directions, availability of lodging, rest stops and service stations, and descriptions of local points of interest. It is not permissible to identify the commercial name of any business establishment whose service may be available within or outside the coverage area of a TIS. However, to facilitate announcements concerning departures/arrivals and parking areas at air, train, and bus terminals, the trade name identification of carriers is permitted.

§ 88.1097 TIS technical standards.

(a) Emission. The use of 6K00A3E emission will be authorized, however NON emission may be used for purposes of receiver quieting, but only for a system of stations employing "leaky" cable antennas.

(b) A frequency stability of ± 20 Hz must be maintained.

(c) For a station employing a cable antenna, the following restrictions apply:

(1) The length of the cable antenna may not exceed 3.0 km (1.9 miles).

(2) Transmitter RF output power may not exceed 50 watts and will be adjustable downward to enable the user to comply with the specified field strength limit.

(3) The field strength of the emission on the operating frequency may not exceed 2 mV/m when measured with a standard field strength meter at a distance of 60 m (197 ft) from any part of the station.

(d) For a station employing a conventional radiating antenna(s) (e.g., vertical monopole, directional array) the following restrictions apply:

(1) The antenna height above ground level must not exceed 15.0 m (49.2 ft).

(2) Only vertical polarization of antennas is permitted.

(3) Transmitter RF output power must not exceed 10 watts to enable the user to comply with the specified field strength limit.

(4) The field strength of the emission on the operating frequency must not exceed 2 mV/m when measured with a standard field strength meter at a distance of 1.50 km (0.93 mi) from the transmitting antenna system.

(e) For co-channel stations operating under different licenses, the following minimum separation distances apply:

(1) 0.50 km (0.31 mi) for the case when both stations are using cable antennas.

(2) 7.50 km (4.66 mi) for the case when one station is using a conventional antenna and the other is using a cable antenna.

(3) 15.0 km (9.3 mi) for the case when both stations are using conventional antennas.

(f) For a system of co-channel transmitters operating under a single authorization utilizing either cable or conventional antennas, or both, no minimum separation distance is required.

(g) An applicant desiring to locate a station that does not comply with the separation requirements of this section must coordinate with the affected station.

(h) Each transmitter in a TIS must be equipped with an audio low-pass filter, installed between the modulation limiter and the modulated stage. At audio frequencies between 3 kHz and 20 kHz this filter must have an attenuation greater than the attenuation at 1 kHz by at least:

60 log (f/3) decibels.

where "f" is the audio frequency in kHz. At audio frequencies above 20 kHz, the attenuation must be at least 50 decibels greater than the attenuation at 1 kHz.

RADIOLOCATION OPERATIONS

§ 88.1107 Radiolocation operations.

Sections 88.1109-88.1155 govern radiolocation operations. Radiolocation frequencies are used in operations to determine direction, distance, speed, or position for purposes other than navigation. The operation of Automatic Vehicle Monitoring (AVM) systems is governed by provisions set forth in § 88.1125.

§ 88.1109 Radiolocation frequencies.

(a) Frequencies in the following bands are available for assignment to radiolocation stations:

1715-1800 kHz, 1900-2000 kHz and 10,500-10,550 MHz

(b) In addition, the following frequencies are available on a secondary basis to stations licensed in various services or Federal Government Radiolocation operations.

Frequencies	Services or operations secondary to
70-90 kHz	International Fixed Service, Maritime Mobile Service
90-110 kHz	LORAN Navigation System (<u>See</u> footnote US104, section 2.106)
110-130 kHz	International Fixed Service, Maritime Mobile Service
3230-3400 kHz	Various Government, Aviation, International Fixed and Maritime Services (only available in as necessary in conjunction with frequencies in the 1715-1800 kHz band)
420 to 450 MHz	Government Radiolocation, Amateur Radio Service, Amateur-Satellite Service
2450 to 2483.5	Other fixed and mobile services, ISM equipment

2900 to 3100	Government Radiolocation, Maritime Radionavigation
3100 to 3300	Government Radiolocation
3300 to 3700	Government Radiolocation
5250 to 5350	Government Radiolocation
5350 to 5460	Government Radiolocation, Aeronautical Radiolocation
5460 to 5470	Government Radiolocation, Aeronautical Radiolocation, Maritime Radionavigation
5470 to 5600	Government Radiolocation, Maritime Radionavigation
5600 to 5650	Maritime Radionavigation, Government Meteorological Aids Service
8500 to 9000	Government Radiolocation, Airborne Doppler radars at 8800 MHz.
9000 to 9200	Government Radiolocation, Aeronautical Radiolocation
9200 to 9300	Government Radiolocation
9300 to 9500	Government Radiolocation, Aeronautical Radiolocation, Maritime Radionavigation. Also coordinated with Government Meteorological Aids Service
9500 to 10,000	Government Radiolocation
10,000 to 10,500	Government Radiolocation, Amateur Radio Service
13,400 to 14,000	Government Radiolocation
15,700 to 17,700	Government Radiolocation
24,050 to 24,250	Government Radiolocation
33,400 to 36,000	Government Radiolocation

(c) Radiolocation stations may also be authorized, on request, to use frequencies allocated exclusively to Federal Government stations, in those instances where the Commission finds, after consultation with the appropriate Federal Government agency or agencies, that such assignment is necessary or required for coordination with Government activities.

(d) Radiolocation operations will be authorized any type of emission upon a satisfactory showing of need.

§ 88.1111 Eligibility.

Applicants eligible in the General Category Pool are eligible for Radiolocation frequencies. See § 88.21.

§ 88.1113 Authorization restrictions.

(a) Devices designed to operate with a field strength equal to or less than 500 millivolts per meter at 3 m on frequencies between 2450 and 2500 MHz, or with field strength equal to or less than 2.5 volts per meter at 3 m on frequencies between 10,500 and 10,550 MHz and between 24,050 and 24,250 MHz, on a fundamental frequency, will not be licensed or type accepted for use under this part, but rather must comply with the requirements for field disturbance sensors as set forth in Part 15 of this chapter.

(b) Operations in the 10,000-10,500 MHz band are limited to survey operations and may not use pulsed emissions.

(c) Because of the operation of stations having priority on the same or adjacent frequencies in this or in other countries, frequency assignments in the bands 1715-1800, 1900-200 and 3230-3400 kHz may either be unavailable or may be subject to certain technical or operational limitations. Therefore, applications for frequency assignments in these bands must include information concerning the transmitter output power; the type and directional characteristics of the antenna and the minimum hours of operation (GMT).

(d) Speed measuring devices will only be authorized below 2500 MHz, at 3100-3700, 5250-5350, 8500-9000, 9200-9300 MHz, and above 9500 MHz.

(e) The 10.500-10.550 MHz band is restricted to radiolocation systems using type NON emission.

(f) 420-450 MHz.

(1) Pulse-ranging radiolocation stations in this band may be authorized along the shorelines of Alaska and the contiguous 48 states.

(2) Radiolocation stations using spread spectrum techniques may be authorized in the band 420-435 MHz for operation within the contiguous 48 states and Alaska. Such stations must identify themselves in accordance with § 88.489(e)(8).

(3) Protected Sites. Applicants should not expect to be accommodated if their area of service is:

(i) Within 160 km (100 mi) of 45°45' N, 70°32' W; 64°17' N, 149°10' W; or 48°43' N, 97°54' W;

(ii) Within 200 km (124 mi) of 32°38' N, 83°35' W; or 31°25' N, 100°24' W;

(iii) Within 240 km (150 mi) of 39°08' N., 121°26' W;

(iv) Within 320 km (200 mi) of 28°21' N, 80°43' W; 30°30' N, 86°30' W; or 43°09' N, 119°11' W; or

(v) In the state of Arizona; the state of Florida; portions of California and Nevada south of 37°10' N; or portions of Texas and New Mexico bounded by 31°45' N, 34°30' N, 104°00' W and 107°30' W.

(3) In the 420-435 MHz band, the maximum authorized bandwidth for non-Federal Government radiolocation stations using spread spectrum techniques is 15 MHz. The minimum authorized bandwidth is 10 MHz and the power of the spread spectrum emission must be evenly distributed over the band.

(g) Although station assignments will generally be limited to 1.0 kHz, systems in the 1900-2000 kHz band may use such bandwidth as is necessary for proper operation of the system provided that the field strength does not exceed 120 microvolts per meter per square root Hertz ($120 \text{ uv/m/Hz}^{1/2}$) at 1.6

km (1 mi). Such wideband operations will be authorized on a secondary basis to stations operating within otherwise applicable technical standards.

(h) For frequencies in the 2450-2483.5 MHz, 10.5-10.55 GHz, and 24.05-24.25 GHz bands, only unmodulated continuous wave (NON) emission may be employed and a frequency stability of at least 2000 parts per million must be maintained.

(i) For station assignments on frequencies in the 1715-1800 kHz band, maximum authorized bandwidth will not exceed 2 kHz.

(j) Except for the 1900-1950 kHz band, radiolocation licensees must expect to share frequencies. In that band, each frequency assignment is on an exclusive basis within the primary service area to which assigned. The primary service area is the area where the signal intensities are adequate for radiolocation purposes from all stations in the radiolocation system of which the station in question is a part; that is, the primary service area of the station coincides with the primary service area of the system. The normal minimum geographical separation between stations of different licensees will be at least 1931 km (1200 mi) when the stations are operated on the same frequency or on different frequencies separated by less than 1.0 kHz. Where geographical separation of less than 1931 km (1200 mi) is requested under these circumstances, it must be shown that the desired separation will result in a protection ratio of at least 20 decibels throughout the primary service area of other stations.

(k) Above 2900 MHz, radiolocation equipment using pulse modulation must meet the following frequency stability: the frequency at which maximum emission occurs must be within the authorized frequency band and must not be closer than $1.5/T$ MHz to the upper and lower limits of the authorized frequency band, where T is the pulse duration in microseconds.

(l) Radiolocation stations operating in the 70-90 kHz or 110-130 kHz bands may operate with a frequency stability of 100 ppm.

(m) A licensee in the Public Safety Radio Service may operate radio units for the purpose of determining distance, direction, speed, or position by means of a radiolocation device on any radiolocation frequency without specific authorization from the Commission, provided all other applicable rule requirements are satisfied.

§ 88.1115 Power limitations.

Radiolocation is generally restricted to the power limitations at § 88.429 except:

(a) In the frequencies 1715-1800 and 1900-2000 kHz, output power must not exceed 375 watts.

(b) In the 420-450 MHz band, stations using spread spectrum techniques are limited to a maximum output power of 50 watts.

(c) In the frequencies 10.000-10.500 MHz, power may not exceed 5 watts into the antenna.

(d) In the frequencies 10.500-10.550 MHz, power may not exceed 40 watts into the antenna.

§ 88.1125 Automatic vehicle monitoring (AVM) systems.

(a) These provisions authorize the licensing of automatic vehicle monitoring (AVM) systems that utilize nonvoice radio techniques to determine the location of vehicles. Authority is also provided for the transmission of voice and/or nonvoice messages relating to vehicles being located.

(b) The use of F1D, F2D, F3E, G1D, G2D, G3E, or P0N emissions may be authorized for operation of transmitters in AVM systems. For pulsed emission, the letters "K, L, M, Q, V, W or X" may be used in place of the letter "P"

(c) Frequencies for AVM operations are assignable as follows:

(1) Licensees for pulse-ranging AVM systems, requiring 8 MHz bandwidth may be authorized in the 904-912 MHz or 918-926 MHz band provided that:

(i) A licensee will not be assigned a second frequency band in the same geographic area until showing is made that the frequency band already assigned is being used to provide location data for not less than 5,000 vehicles.

(ii) Operations must not cause interference to Federal Government stations that operate in these bands and must tolerate interference from industrial, scientific, and medical (ISM) devices and from government stations that operate in these bands.

(2) AVM systems requiring bandwidths not exceeding 1 MHz may be authorized in the 903-904 MHz or 926-927 MHz bands on a developmental basis in accordance with § 88.1401.

(3) Applicants requiring not more than 25 kHz bandwidth per frequency in the 25-50 MHz, 150-170 MHz, and 450-512 MHz bands may either utilize base-mobile frequencies currently assigned the applicant, or be assigned base-mobile frequencies available in the service in which eligibility has been established, provided that:

(i) For transmission between vehicles and base stations, each frequency in a single-frequency mode of operation will provide location data for approximately 200 vehicles, or both frequencies in a two-frequency mode of operation will provide location data for approximately 400 vehicles, except that for paired frequencies in the 450-512 MHz band, the requirement is that location data be provided for approximately 200 vehicles for each frequency pair; and a showing is made that 50 percent of the vehicles will be in operation within the system by the end of the second year of the initial license term, and 70 percent will be in operation within the system by the end of the initial license term; except that if these vehicle loading standards

will not be met, frequencies will be assigned only on a secondary noninterference basis to any authorized radiotelephony operation.

(ii) The minimum separation between a proposed AVM station and the nearest co-channel base station of another licensee operating a voice system is 120 km (75 mi) for a single frequency mode of operation or 56 km (35 mi) for a two-frequency mode of operation. Where the minimum mileage separation cannot be achieved, agreement to the use of F1D, F2D, G1D, G2D or P0N emission must be received from all existing co-channel licensees using voice emissions within the applicable mileage limits. If there is interference with voice operations and required agreement was not received, or operation was authorized on a secondary noninterference basis, the licensee of the AVM system is responsible for eliminating the interference.

(iii) Additional frequencies under paragraph (c) (3) of this section will not be assigned to the same licensee in the same geographic area until each of such licensee's frequencies for AVM operation is shown to accommodate not less than 90 percent of the frequency loading requirements specified in paragraph (c) (3) of this section.

(d) Each application to license an AVM system must include the following supplemental information:

(1) For wideband frequency operation, the necessary or occupied bandwidth of emission whichever is greater.

(2) The data transmission characteristics as follows:

(i) The vehicle location update rates;

(ii) Specific transmitter modulation techniques used;

(iii) For codes and timing scheme: A table of bit sequences and their alphanumeric or indicator equivalents, and a statement of bit rise time, bit transmission rates, bit duration, and interval between bits;

(iv) A statement of amplitude-versus-time of the interrogation and reply formats, and an example of a typical message transmission and any synchronizing pulses utilized.

(3) A plan to show implementation schedule during the initial license term.

(e) Technical standards.

(1) AVM stations authorized for operation below 512 MHz must comply with the technical standards applicable to the frequency band prescribed in this chapter, including the requirement for type acceptance of equipment used.

(2) The output power for AVM stations authorized for operation above 512 MHz is 1 kw PEP for pulse ranging systems and 300 watts for non-pulse systems.

(3) Transmitters to be operated at signposts, or from vehicles to signposts for location signaling purposes may be employed with output power not to exceed 250 milliwatts, and their operation is secondary to regular co-channel operations on the frequency being utilized.

(4) The Commission, on a case-by-case basis, may impose additional appropriate technical requirements to assure efficient and effective frequency utilization.

(f) AVM stations are exempted from the identification requirements of § 88.489; however, the Commission may impose automatic station identification requirements when determined to be necessary for monitoring and enforcement purposes.

§ 88.1135 Wildlife tracking operations.

A licensee in the Public Safety Radio Service may use, without a specific authorization from the Commission, transmitters on the frequencies indicated below in connection with wildlife tracking and/or telemetry and in connection with official forestry-conservation activities. Such use will be on a secondary basis and must not cause harmful interference to services of other licensees operating on regularly assigned frequencies. The provisions of §§ 88.405 and 88.489 will not apply to transmitters complying with this section. To be eligible for operations in this manner, the transmitter must comply with all of the following requirements.

(a) The carrier frequency must be within the bands of:

31.17-31.19, 31.21-31.23, 31.25-31.27, 31.29-31.31, 31.33-31.35, 31.37-31.39, 31.41-31.43, 31.45-31.47, 31.49-31.51, 31.53-31.55, 31.57-31.59, 31.61-31.63, 31.65-31.67, 31.69-31.71, 31.73-31.75, 31.77-31.79, 31.81-31.83, 31.85-31.87, 31.89-31.91, 31.93-31.95, 31.97-31.99, 44.63-44.65, 44.67-44.69, 44.71-44.73, 44.75-44.77, 44.79-44.81, 44.83-44.85, 44.87-44.89, 44.91-44.93, 44.95-44.97, 44.99-45.01, 45.03-45.05, 151.145-151.475, 159.225-159.465 MHz

The carrier frequency must be maintained within 50 ppm of the frequency of operation. Use on assigned channel center frequencies is not required.

(b) The emitted signal must be non-voice modulation (A1D, A2D, F1D, or F2D emission).

(c) The maximum occupied bandwidth, containing 99 percent of the radiated power, must not exceed 0.25 kHz.

(d) The transmitter output power must not exceed a mean power of 5 mW nor may any peak exceed 100 mW peak power, as measured into a permanently attached antenna; or if the transmitter and antenna combination are contained in a sealed unit, the field strength of the fundamental signal of the transmitter and antenna combination must not exceed 0.29 V/m mean or 1.28 V/m peak when measured at a distance of 3 meters.

§ 88.1145 Stolen vehicle recovery systems.

(a) The frequency 173.075 MHz is available for stolen vehicle recovery systems on a shared basis with the Federal Government. Stolen vehicle recovery systems are limited to recovering stolen vehicles and are not authorized for general purpose vehicle tracking or monitoring.

(b) Power Limitations. Mobile transmitters operating on this frequency are limited to 2.5 watts power output and base transmitters are limited 300 watts ERP.

(c) Technical Limitations. Transmissions from mobiles must be limited to 200 milliseconds every 10 seconds, except that when a vehicle is being tracked actively, transmissions may be increased to 200 milliseconds every second. Transmissions from base stations will be limited to a total time of 1 second every minute.

(d) Authorization Limitations. Applications for base stations operating on this frequency require coordination with the Federal Government. Applicants must perform an analysis for each base station located within 169 km (105 mi) of a TV Channel 7 transmitter of potential interference to TV Channel 7 viewers. Such stations will be authorized if the applicant has limited the interference contour to fewer than 100 residences or if the applicant: shows that the proposed site is the only suitable location; develops a plan to control any interference caused to TV reception from the operations; and agrees to make such adjustments in the TV receivers affected as may be necessary to eliminate interference caused by its operations. The licensee must eliminate any interference caused by its operation to TV Channel 7 reception within 30 days of the time it is notified in writing by the Commission. If this interference is not removed within the 30 day period, operation of the base station must be discontinued. The licensee is expected to help resolve all complaints of interference.

§ 88.1155 Radio tracking devices.

The frequencies indicated below may be used in connection with official police activities without specific authorization from the Commission, on a secondary basis provided such use does not cause harmful interference to services of other licensees operating on regularly assigned frequencies. To be eligible for operations in this manner, the transmitter must comply with all of the following requirements.

(a) The carrier frequency must be within the bands of

30.85-30.87, 30.89-30.91, 30.93-30.95, 30.97-30.99, 31.01-31.03, 31.05-31.07, 31.09-31.11, 31.13-31.15, 31.17-31.19, 31.21-31.23, 31.25-31.27, 31.29-31.31, 31.33-31.35, 31.37-31.39, 31.41-31.43, 31.45-31.47, 31.49-31.51, 31.53-31.55, 31.57-31.59, 31.61-31.63, 31.65-31.67, 31.69-31.71, 31.73-31.75, 31.77-31.79, 31.81-31.83, 31.85-31.87, 31.89-31.91, 31.93-31.95, 31.97-32.00, 33.00-33.03, 33.05-33.07, 33.41-34.00, 37.00-37.43, 37.89-38.00, 39.00-40.00, 42.00-42.91,

44.61-45.91, 45.93-45.95, 45.97-45.99, 46.01-46.03, 46.05-46.60, 47.00-47.41, 150.995-151.490, 153.740-154.445, 154.635-155.195, 155.415-156.250, 158.715-159.465, 453.0125-453.9875, 458.0125-458.9875, 460.0125-460.5125, 460.5625-460.6375, 462.9375-462.9875, 465.0125-465.5125, 465.5625-465.6375, 467.9375-467.9875

and must be maintained within 50 parts per million of the frequency of operation. Use on assigned channel center frequencies is not required.

(b) The emitted signal must be non-voice modulation (type PO emission).

(c) The maximum occupied bandwidth, containing 99 percent of the radiated power, must not exceed 2.0 kHz.

(d) The transmitter output power must not exceed a mean power of 30 mW nor any peak exceed 1 watt peak power, as measured into a 50 ohm resistive load, except, if the transmitter has a permanently attached antenna or the transmitter and antenna combination is contained in a sealed unit, the field strength of the fundamental signal of the transmitter and antenna combination must not exceed 0.4 V/m mean or 2.3 V/m peak when measured at a distance of 3 meters.

(e) The transmitter must automatically limit the transmission time to no more than 10 days.

FIXED OPERATIONS

§ 88.1171 Fixed operations.

Sections 88.1175-1283 govern operational fixed use under this part.

§ 88.1175 Control station links.

Control stations associated with mobile relay stations will be authorized only on the assigned frequency of the associated mobile station.

§ 88.1179 Secondary fixed operations.

Fixed operations may, subject to the following conditions, be authorized on a secondary basis for signaling, ancillary data and alarm operations on a licensee's mobile service frequency(ies) above 25 MHz within the area normally covered by the licensee's mobile system. Voice signaling will be permitted only by police agencies and licensees with exclusivity or concurrence of co-channel licensees.

(a) The output power must not exceed 30 watts at the remote site.

(b) The maximum duration of any non-voice signaling transmission must not exceed 2 seconds and must not be repeated more than 3 times. Signaling

transmissions may be staggered at any interval or may be continuous. For police agencies, the maximum duration of any voice signaling transmission must not exceed 6 seconds and must not be repeated more than 3 times.

(c) Systems employing automatic interrogation must be limited to non-voice techniques and may not be activated for this purpose more than 10 seconds out of any 60 second period. This 10 second time frame includes both transmit and response times.

(d) Automatic means must be provided to deactivate the transmitter in the event the carrier remains on for a period in excess of 3 minutes or if the transmission for the same signaling function is repeated consecutively more than five times.

(e) Fixed stations authorized pursuant to the provisions of this section are exempt from the requirements of §§ 88.95(b), 88.489.

(f) Base, mobile, or mobile relay stations may transmit secondary signaling transmissions to receivers at fixed locations subject to the conditions set forth in this section.

(g) Under the provisions of this section, a mobile service frequency may not be used exclusively for secondary signaling. The use of secondary signaling will not be considered in whole or in part as a justification for authorizing additional frequencies in a licensee's land mobile radio system.

(h) Exemptions with Trunking, Exclusivity or Concurrence. Licensees of mobile/base station systems above 150 MHz are exempt from the requirements at (b) and (c) if the system is trunked, the licensee has written concurrence from all co-channel base station licensees located within 113 km (70 mi), or the licensee has written concurrence from all co-channel base station licensees located within 80 km (50 mi) and all co-channel base station licensees located between 113 km (70 mi) and 80 km (50 mi) whose stations exceed the power limitation of § 88.429.

§ 88.1189 Fixed operations in the 72-76 MHz band.

(a) The following frequencies in the band 72-76 MHz may be used for fixed operations:

MHz: 72.02, 72.04, 72.06, 72.08, 72.10, 72.12, 72.14, 72.16, 72.18, 72.20, 72.22, 72.24, 72.26, 72.28, 72.30, 72.32, 72.34, 72.36, 72.38, 72.40, 72.42, 72.46, 72.50, 72.54, 72.58, 72.62, 72.64, 72.66, 72.68, 72.70, 72.72, 72.74, 72.76, 72.78, 72.80, 72.82, 72.84, 72.86, 72.88, 72.90, 72.92, 72.94, 72.96, 72.98, 75.42, 75.46, 75.50, 75.54, 75.58, 75.62, 75.64, 75.66, 75.68, 75.70, 75.72, 75.74, 75.76, 75.78, 75.80, 75.82, 75.84, 75.86, 75.88, 75.90, 75.92, 75.94, 75.96, 75.98.

(b) Authorization Limitations. Because of the potential for interference to the reception of TV Channels 4 and 5 by broadcast television sets and video

recorders, assignments of the 72-76 MHz channels are subject to the following conditions:

(1) Assignments of 72-76 MHz channels for use within 129 km (80 mi) of a full service TV station transmitting on Channel 4 or 5 are subject to the condition that the licensee must eliminate any harmful interference caused to reception on TV Channels 4 or 5. If the Commission notifies the licensee of an interference problem and the licensee does not resolve the problem within 90 days of such notification, operation of the interfering 72-76 MHz fixed station must be immediately discontinued.

(2) 72-76 MHz channels may be assigned for use within 16 km (10 mi.) of a full service TV station transmitting on TV Channel 4 or 5 under a developmental authorization, pursuant to § 88.1401. However, for use within 50 m (164 ft) of a TV station transmitting on TV Channel 4 or 5, 72-76 MHz channels may be assigned under a regular authorization, rather than a developmental authorization.

§ 88.1203 Fixed operations in the 150-174 MHz and 450-470 MHz bands.

(a) Available Frequencies. Any frequency available in Subpart D in the 150-174 and 450-470 MHz bands, may be assigned for fixed operations, on a secondary basis to land mobile operations.

(b) Power Limitations. Output power may not exceed the power limitation for mobile operations on that frequency. In addition, output power may not exceed 20 watts except outside 161 km (100 mi) of the centers of the top 75 markets as listed in § 88.1601.

(c) Assignment Limitations.

(1) Applications must include written concurrence from all exclusive use overlay licensees for the frequencies applied for, with base stations located within 80 km (50 mi) of any base station of the proposed fixed operation.

(2) To maintain the primacy of mobile operations, no such fixed operation will be approved for a frequency unless the applicant has concurrence from at least one relevant exclusive use overlay licensee as defined in para. (c) (1) of this section. Fixed use is secondary to land mobile operations and may not cause harmful interference to any existing or future land mobile stations.

(3) All such fixed systems are limited to a maximum of two frequencies and must employ directional antennas with a front-to-back ratio of at least 15 dB, except that omnidirectional antennas having unity gain may be employed for stations communicating with a minimum of three receiving locations encompassed in a sector of at least 160 degrees in azimuth. For two-frequency systems, the separation between transmit-receive frequencies is 5 MHz.